

**9th International Conference on  
Agricultural Biotechnology: Ten Years After**

organized by the:

**International Consortium on Agricultural Biotechnology  
Research (ICABR)**

and the:

**Catholic University of Leuven  
CEIS - University of Rome "Tor Vergata"  
Centre of Sustainable Resource Development, University of California at  
Berkeley  
Economic Growth Centre, Yale University**

**Ravello (Italy), July 6-10, 2005**

**“Managing Plant Genetic Diversity and Agricultural Biotechnology  
for Development”**

by

Leslie Lipper, Joseph C. Cooper, and David Zilberman

Corresponding author: Joseph Cooper

Deputy Director, Resource Economics Division  
Economic Research Service, USDA  
1800 M Street, NW  
Washington, DC 20036  
e-mail: [jcooper@ers.usda.gov](mailto:jcooper@ers.usda.gov)

**ABSTRACT**

This paper provides an overview of the economics of the management of plant genetic resources for food and agriculture in the context of economic development. Key issues addressed include agricultural biodiversity conservation, managing biotechnology for development, equity issues in the management of plant genetic resources and the policy implications associated with the respective analyses. The paper suggests that that agricultural biodiversity and biotechnology are co-evolving, with a number of different points of intersection. Recognition of the inter-dependency between biotechnology and biodiversity is critical to the achievement of sound policy design for the management of agricultural biotechnology and biodiversity in the context of economic development. One of the most important areas of intersection are in the tools that biotechnology offers to increase the knowledge based on the status and value of agricultural biodiversity resources. Since much of the demand for conservation is in developed countries, but the supply located in developing countries, improving the information base of conservation activities has both efficiency and

equity implications. A second important area of intersection is the impact of institutional changes associated with the development of biotechnology on the access to genetic resources and agricultural biodiversity. The paper examines various types of intellectual property right regimes and benefit sharing mechanisms and their potential impacts on the free exchange of genetic resources. The paper focuses particularly on the issues of benefit-sharing which arise in the design of the multilateral system under the International Treaty on Plant Genetic Resources which came into force in 2004. Gene-flow from genetically modified organisms into native gene pools is also raised as an important area of intersection between biodiversity and biotechnology. The paper reviews some of the key concerns and the ways in which these have been manifested in biosafety regulations. A final area of discussion is the impact of biotechnology on the numbers and genetic content of improved varieties and the potential this has on various aspects of agricultural biodiversity.